Notebook, PN-10-05-10

This pocket notebook was used by Edison in 1910 for notes regarding experimental work and other tasks to be performed at the laboratory. Many of the entries pertain to the composition and manufacture of phonograph record blanks and to storage battery electrodes. There are also notes on tungsten lamp filaments, color photography, cement production, and storage battery performance in electric vehicles. Among the employees mentioned in regard to experimental work are Walter N. Archer, William G. Bee, Charles Dally, Ignacy Goldstein, and Walter E. Holland. The book also contains many notations of a non-experimental nature. Included are reminders about music and musicians, notes on possible names for a new large-diameter amberola record, lists of employees, and ideas for promoting Edison's storage battery among owners of electric vehicles in New York and New Jersey. Tabulated data at the end of the book provide details regarding battery production, cement shipments, projected income, battery performance summaries, and the volume of cement necessary for a poured concrete house. The pages are unnumbered. Approximately 115 pages have been used.

176 -

48

52.25
40.5
26125
20900
2116.125

2470 -

12) 2116 (176
12
91
84
76
7

Bachmann to make some concrete with hot water 1 2 + 3 mixt no clay

Try Lac, Toluol Cld + some paraffine, also Spermaceti – all things to get it thinner

Try Chlorhydrate of Ghycerol mixt + Goldstein chems.

~~See if good solvent for Chloro Toluol can be found which is not a solvent for lac – Petit can dip a wire dip out Toluol + Regress – get rid of air. Could make lac much thinner – Xylol OK~~

For disc	Ex	10 and
Apratus wanted for Experiment.		
1 Shaving Mac for finish shaving	X	4
1 Shaving Mac for rough shaving		6
1 Blank moulds for black masters 10" size		5
1 Blank moulds for black master 12" size		5
2 Blank mould plates – small 25"		
Blank mould plates large 125" } 10" size		150
Blank mould plates small 25"		
Blank mould plates large 125 12" size		150
Blank mould Hot + cold plates 10" size		5
Blank Mould Hot + Cold plates 12" size		5
Microscope stand one done		
Revolving parts for plating Tanks		40
Rings + plates for pressing blanks 10"	X	350
Rings + plates for pressing blanks 12"		200
Rings + plates for pressing records 10"	X	350
Rings + plates for pressing records 12"		200
Extracting Machine 10"	X	15
Extracting Machine 12"		15
Edge finishing machine 10"	X	5
Edge finishing machine 12"	5	5
Polishing Machine 10 x 12" size	1	5
Labelling Machine 10 x 12 size	1	5

Superheater & Condenser for Rosin Kettle.	X	10
Loading Machine for blanks 10"	1	5
Loading Machine for blanks 12"		5
Revolving parts for Gold plating 10"	1	5
Revolving parts for Gold plating 12"	1	5

Speak Dyer about having record mfg reports sent him -

Get the batts of 16.8 / 734 B_1 & Have Archer grind 3½ lbs right size and Dodge man make 1 A4 cell.

Archer 3 tubes 734 16.8 / B_1
25 K 1 Li Dup 25 K 2 Li
Dup 28 K 1 Li Dup 18 K 1
Li Dup 18 K 2 Li Dup 18 K 3 Li
Dup 21 K 3 Li Dup 21 K 4 Li
Dup 16 K 2 Li Dup 16 K 3 Li
Dup 16 K 4 Li Dup 16 K 5 Li

Holland see if he can flacken that piece $B_1 O_2$ all way thru - give him a piece of the yellow $B_2 O_2$ see if it works better

Get from Goldstein the numbers of B_1 tubes that has B.C.H in mark in book if haint done so

Adapt new reproducer to our phone

Dyer refuse to guarantee battery cans after 2 months give reasons when we return Ni plates, they pay for solution

Li

Petit - give a 4 mm Mouton -

Belly Bee to tell Hill he has left out fact that we can reduce weight of his vehicles to the extent of the overweight of the lead battery. This will of itself give same strains as before but increase of mileage, lower current & diminish tire wear & starting strains

Morrow - tell the people that is unreliable, clothing worse than anything else. Let him tell the school-boy - Jeffers has been a good sport

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Send from Dodge how long block on hand will last —

Buy Pillsbury — or Formaldehyde HCl + Every organic — including Sulo, food church Etc,

See if Metallic Iron reduces the Bi Nitrite Solution,

L. Ott if you can precipitate Bi from this Solution,

Ask Goldstein if he has made those Mt Ott Coal Combus yet,

Get the Hemp for Pierman

Get No 2 Meyers Lab Book & Stand Eggleston on variable Chamber & hole Recorder Cup,

Correct Shaffels List with that in my book, Have Schaffal give Dyer Copy of daily report he makes me —

Get the 854 1129 - Bi ready for Archer 1129 also drying —

Look at some of Goldstein 8% Bi Green see if can see specs of Bi_2O_3 —

Lead pocket - this powder Tr utility or not?

Silicon Ethyl in alcohol makes Cell lead now inflammable,

Get 4 high Voltage Herbert The "Glitters."

Goldstein make Bi Dioxide Bi_2O_3 (Bi Tri oxide & stannous chloride equivalent proportions dissolved in HCl mixed sol poured in moderately strong KOH result black brown precip is boiled with strong KOH which dissolves stannic leaves the Bi_2O_3 —

This dried at 100° is original block
Crystal powder dip to remove or
[illegible] Emulsion over Gummy like
Tinsdor Schnauer Pop[illegible]
1 xxxviii 45, Schuff [illegible] chem
Pharm - C[illegible] 331 -

Goldstein make uniform form
B. Oxide to mix with
Gram a also to precip
in green

Mix some with Double
B. Nitrite - with green

Dyna not Wrong. Silver Lake
S B Trade dull work for
Emfg Co at Lake -
now only [illegible] 12 miles -

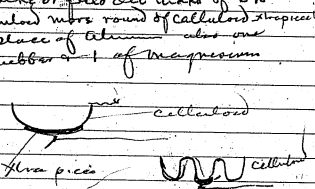
Get detail Cost of Moving
Fire Film to [illegible] -

Get Safe or a drawer if Cos
Drop left Wagers get
Lock Sheet from Dryer -

Walke make a knife spring not
so deep + thinner stock to lighten
cost - also a spring of the
.006 Celluloid spring part 1/8 or more
wide - This will lighten -

Make non flap of glass
Dully blow also

Walke or Fred Oil make of .010
Celluloid more round of celluloid strip pieces
in place of [illegible] also one
of Rubber or 1 of magnesium



Pressure little cough oil - dillo
our show grafts on knife edges
& put smaller grooves inward
on knife lock. That gives good
record.

Pierson - try some wallpaper the computer to get in line on it

Run tests on B. tubes with Dow-Corning in the Electrolyte to measure Dielectric loss the B's to harden the distributions for Carlisle

Listen to Victor 25 tunes played - Goodman

Insulation tape (Cellulose) left to 006 Cellulose & 00 - 0054 to Cellulose see seed of Can get it thinner

Capacitor Wake drawing pot 7/8 3/4 5/8 Recorder somewhat Curtis 9/16 13/32 13/32

Billy Bee - Morrison uses Lead in 2 or 3 trucks at Lamp works -

Ross to make a list of all troubles people had with Cathem in his knowledge so we can guard for them in the guarantee

Dow increasing Cap 6 Alley Co. to 2½ million -

Edison Co Office Cor Elm & Duane St 1

Electric 50 Tunes 42 Downing St New Plymouth

Wolke Wake Magnesium Kingf Spring

Put somebody on finding a solution to plate Tungsten ~~on filament~~ 605

Tungsten fils
Acetone, Ethyl, methyl, Solvent.
fused entry wires cycle with W.

Prove the different Tungsten bronze
that Conduct up to high heat.
between pt. Electrodes in Vacuum
see market, Dally do it.

Wind a small motor on carbon pt
150 volts direct Ct for experts on
Lamps to neuralgia slides
dig on globes

Reverse low rate long time
3 tubes that from long
use gone low capacity
film ~~Etc~~ see if can
prevent ox & tri & dissolve
Fe out by Br or Cl.

Pierman ~~Tr~~ Long
furnished ~~1~~ 1 Ring
1 Rings

Advertise in Bu Ch Clave
NE etc - When you lead Galleys
are worn out use the new Edition
Galley etc -

Mallory send for Bulletin
418 of US Geological Survey
Called Fire Tax a waste of
Structural Material in US
Copy Part P "The total cost of fires
in US in 1907 amounted to
almost one half of the Cost
of new bldgs constructed in
that year
(Copy down to)
5654 were injured." ~~P~~
for the Agriculturists. On black
letters Keep it in every
issue send it to Hager &
have him keep it in his
Stamp Mary Grul Ancenzoo
Mexico Engineer

~~3 Cells 20% B.O throw~~
~~100 on 190 - Big Cells~~
~~A4 60 90 & 120 Bulb~~

~~3 = 15%~~

~~3 12%~~

~~3 10%~~

~~Holland fund cost of~~
~~B.O on one produces~~
~~when Cell is 1/2~~
~~discharge A4~~

Plunch Hale

1 Patent corrugated ring dia flexing material like zn Celluloid - Viscose, paper etc
Knife spring flexed only, placing dome non flex. Center -

2 Patent new Repeater flexing Dia ball spring flex only at fulcrum. Weight tilted

3 Rotating disk cut of sounds see if there is a persistence of sound

2 tubes burns out.

3 Extra shutter could be by hofer. for fulcrum throw off + one Colored light
2) Knife gears together + pictures taken same way

4 plate some tube stock with gold or tube itself - run reg

5 fund Tangled Tantalum wires + add 1/2 gram Each tube, 2 Cells

6 = Make a knife edge recorder for Durand -

7 Make up to date Reg recorder Louder + not wear second

8 See if hot chalk dust can be Caught by Electrolysis -

9 Try ring dia on S Regular

10 Dyer when in Washington see PHD Dr Grimes about Jamison

11 See Johnson get 4 months Credit on his next fall.

12 Scheme Develop a reflex low pressure steam from low press turbine, this could chill air + dust drops -

13 = Want Reg reports of sales profits Expenses all foreign Cos -

14 Get list Elec pleasure trucks. My P. Ohio Iff. Mo Dc Mass + New Eng States -

15 Make Wound metal Can + make A4 - Holding test under worst conditions outside, ie Tinley Ills

Ask Cabart how about Option on Rudolph also if he can get option on Rand prospect for Bi 2c lb royalty

See if Master record Can be dropped in Tribalac - also Try the Chl Tolmol paper with it on Patterson way

See if powdered stuff
that Regan can be
mounted in a smooth
small cylinder

Ask Balbach if they
have Bismuth
Ask Morrow if he
had Bismuth when
in Montana —
Ask him where all
Copper Electrolytic
plants are —
Ask Parke Channing
also ~~speak about~~
Rollo — get him dozen
to Cement works

See Duquesnes get letter from
Jack Morgan — Rollo — also
See J Hay Hammond Rollo —
See Johnson if they could
work Darby mine —

Dyer ~~for up~~ Brewster
photos Harry C's bonds so
Can Exchange them for
Mina Mining —

Holland to discharge from A4
150 amp in hour see voltage —
ditto 30 min ditto 15 min
get heat etc data for a
Potulson battery —
Have it 80 deg not less
Save this cell for plants
take it out of prod
product

Ask Regel new Bi ores

Ask Dyer how long a lease
10 5th ave & do ~~they~~ pay taxes

Archer –

2 tubes 15% B_2O mix 100 on 190

21K 2 di containing following

2 grms each cell –

Br K Br Na	Sulphate Na
Cl K Cl Na	Silicate Na
Al dis in	Borate Na
Zn "	Phos Na
Nitrate K	Phos K
Nitrate Na	Arsenate K
BaOH	" Na
SrOH	Nitrobenzoate K
CaOH	" Na
Sulphate K	Chromate K
Molybdate K	" Na
" Na	
Manganate K	Tellurate K dilute
" Na	Selenate K dilute
Carbonate Na	Tartrate K – Na
" K	Oxalate K
Fluoride K	Citrate K – Na
" Na	Iodate K
Iodide K	Zirconate K Na
" Na	

Goldstein, precip 1/2 Ferric 1/2 Nickel

160	1/2 BaO 1/2 MgOH
140	1/2 SrO "
64	1/2 CuO "
160	1/2 Mn ic "
224	1/2 Co "
	1/2 Cr "
	1/2 Ce ic "
	1/2 Ur ic "
	1/2 Bi "

Wanted (Calc 1.10)

" "

Goldstein precip Fe_2O_3 & equals

at Red heat, [illegible] Gill

The form [illegible] Sol. Chloride

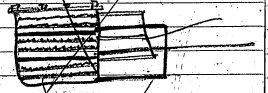
[illegible] from [illegible] of

[illegible] $Sulphate\ Fe_2O_3$; [illegible]

[illegible] degree, [illegible]

precip it when got it

Eggleston or
Have John Oldsah out/ow
from Richmond out 2 trays
then remove gas & Condense H_2O
& let H go into 2 more trays
& so on to build 1000 lbs
thus



3 sections 2 trays each 50 lbs
on sec 300 lbs total Frgot.
Can probably Cast channels so
only 1 H + 1 working pipe
necessary

Look up Oldsah's numbers
& see good loading wt &
where all of N_2O_5 saved
If good RA Comes Land
Oldsah Repeat it

ask Oldsah what he found
best way dry $NaOH_2$

Dolly take dust $NaOH_2$ &
use different amounts Water &
press it in small round cake
same as chalk 180 lbs
Crush & make 2 tubes —

Find one of Oldsah's
very light $NaOH_2$ &
see if Dolly can condense
it by pressure with machine
in it also little KOH in
it — Had out find that
small steel dia. we
had bottles to get
great pressure —
Try Ferric ox sing for RA.

Dyn Smith is slow

Make some use to collect
deep 4 1/2 4 3 3/4
3 1/2 3 1/4 3 2 3/4 etc

When I see Vail speak
about Meadowcroft
Letter in his grind —

Poland holes in film
off problem that is should
be forced use Elec Contact
to work magnet behind
screen to let off platine
drop and then to make more
of Ernst's Control shutter
to color my particular
problem or problems

John Ott design of grid
for 3/16 tube for 5 or 6 plates
in an A 4 - Manager 70 to
increase discharge rate

also a big grid to mounted in tubes
— 1/16 sheet iron or even 1/32 cell
to be 3x2 5/4 deep —

See if Goldstein got the Nickel
with Co Off in the dry yet

Get the Acclo Autoscope diagrams

Pierson try glass Center

See if Pettit make the disp in Tetrabine

Correct to date Schufele list

Listen to 25 tunes over Victor
Record

Get Victor machine + some
Marconi Records also
Vocal to be put up —
Pierson room —
also an Ambrola Machine
all one to test Pierson Thermo
+ make better record

Holland to find out how much
lower 25K ½ Li or 1 Li is in
Resistance than 21K –

Select a good green for
Regwork + use 40 lbs for
Bi_2O Cells –

2 tubes 10% Bi_2O +
1% $CoOH$, thru 100 on 190

Drop 2% $CoOH$
Drop 4% $CoOH$
Drop 6% $CoOH$,

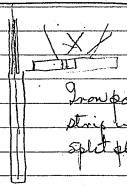
22 tubes 10% Bi_2O
1% Cu
Drop 2%
Drop 4%
Drop 6%

3 tubes using large flake
graphite, 7 V Mill and drop
screen out rise unloaded flake thy
Drop green thru flake graphite
dump Drop with 10% Bi_2O + 20%

Drop but dump green
then Tamp, then flake then
tamp –

Drop using 10% Bi_2O –
Drop " 20% Bi_2O

May 10 1910



John Ott –

Iron pocket with perforated
strip in Center
split plunges or wires

If have not done so
Make 2 5 gm Cakes flat pockets
20% Bi_2O_3 dittto tubes
Drop 25% dittto tubes –
Use Bi_2O_3 dried fine powdered
hydrate of Bi to mixed with
Fe – Drop with Fe having
no Hg lookout for Chg Curves

flat pockets Fe mix 10% Cobalt Red by Hg from Sulphate.
Dup 15
Dup 20
or better have Pell make the mix
in Lab 95 Fe 5 Co 90 Fe 10 Co
85 Fe 15 Co 80 Fe 20 Co —
J.
Get some flat pockets plated
with Silver at Shore work
load with Fe mix no Hg
drill with Hg — also no Hg + 10%
Bismuth hydroxide or also with Hg

Fe flat plts Hg — 10% Cd 15% Cd
20% Cd dip with Hg J.

Dup above 10 Cerium Cerric hydroxide 15% Cerium
20% Cerium.

Dup 10 15 + 20 Sb Oxide

Dup 10 15 + 20, Litharge.

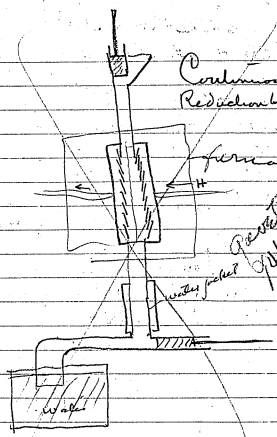
Dup " Ferric hydroxide
" " Mercuric hydroxide

Reg mix with 5 10 15 25% of
Red Ferric from RA —

Ask Murray if I can have
Copy of Contract for the
Dubbelaar Gulcoy 9 Sons —
or at least that part covering
Coporanty granulites & powder

Telegraph Moyer to have that
data over here Friday
Morning if impossible
then ~~[illegible]~~ Monday
would do — points coming
over Friday

Goldstein Feal / Reg Fe
Mix to determine amount
Metallic Fe + Oxide —
also Hg —



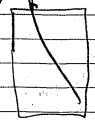
Try Experiment grinding up Mn SO4 7 H2O & Na OH solid, letting cool & then dissolving - just nearly dissolves as water except abt. 1% makes nearly — Sol'n

General letter to all the Prescott Light & Gas power Cos

Ask Oscar Wright mean if fuel value of gas decreased light =

Talk Meyers for stuff 1st find out what Lamb Commy

Holland Crest for gas as gas indicates to Stand coffee Cadillay Charges



Write to George Coast SP Bat Bldg

See Weber abt getting down phone Rockwell & buying only

Enough stocks to keep you also see what shop orders now on shop —

Get good Dictaphone — dictate letters — from choice — or Miss Hughes former girl —

See if Ballard put there 2 cells changed of 2 discharge A for accuracy for a long test — Possibly new cells left in 3 Bakery bldg or not used for long time might deteriorate bad —

See if Pierson did strengthen the Coulee of last recorder —

Get the big phonograph recorder so can fit new wax plate to it to take records or have good phono make records —
Fit up air out & Regular for big machine —

Have Martini Come up & make dog records —

When Dyer returns go over British patent situation specially in Re Bismuth patent, How about we demand because ~~[illegible]~~ contract not there,

Look up in Morrow's Report & Correct 1 Ton horse + Electric Costs — don't give mileage

Get explanation of upkeep Cost on Utah last of Crucks in this book —

Take up with Lansden Adv Man the Map + route scheme of advertising —

Wife get a Church woman Dinner —

Subscribe for the Bankers Magazine

Gain price arrow down to
Lamoden - ~~see~~ See Lobelia pt.
brush

See Billy Bee just what
breaks on damage he has
received

Goldstein make 1 lb
Bitydrix - Dolly
press 02 - hand
Gallagher - Mary
arolier Church
Thru 100 on 190

Long Island - Billy Cor road
Chas. Coulfield to
occupy 100 wheelbrooms
day will leg fault up
Pt Pretty

Lambies House
Cor Valley road & Washington
ave -

Fireman Little Phone graft to
on Ring dia -

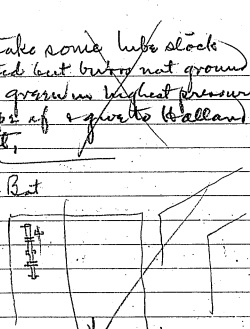
Buchman - put up a
slender pole showing
length of the house at show

Buchman - Stronger lights
inside house model -
Those now in poor -

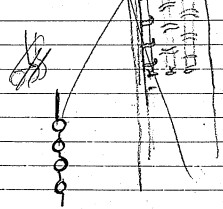
See Inverdale about Cars
Thru tunnel direct to Orange
Can go up 16% grade at Hoboken
to get to D.L.&W. R.R. - Can
land any where in Newark
Agnage Light,

Dally take some lube stock perforated but burr not ground & press grooves highest pressure & drops of ~~[illegible]~~ to test,

Slalom Bat



Bat's closed in



See Harlan Chipple —

perforated strip, ~~[illegible]~~ press in only grooves No O - Reduce at high temp in H - to weaken at stick to be obvious - then soak Conc Nr salt + H2O till saturated with Nr OH - probably can mix somewhat dilutable with the No O to weaken more sponge - & OH Nr plated strips to bonded - also use grooved 1/32 of full grooves with No O under great pressure & reduce - & fill with Nr OH or act on Nr with KOH + bypass to make it active -

15252515 — FOOD
005
filled No Sponge

See Mr Adoo

See Simpson - follow up big Musselum Recorder etc

Schaffel Copper at Best in Chap

Bushnell take photo
12 X 12 form now up
for show —
Lansdew Advt go in
Jnl of Commerce & Comml
Bulletin —

60 1/2 lb
40

Wales - Erie 1333/hoc
60 new ones required each year 5/ amortize
Double track by RR Double Trolley 11000 V
11 10300 wide - single track 14400 u
Estimated cost 218 per annum up keep per
track per mile

only
Old Elec repairs loco .39 / car mile
New Elec .26 car mile

average run of a loco 80 miles
Coal cost 11% of operating expense

average passenger train 515 tons
Erie Engine average wt 60 tons
on drawbar 35 tons
av wt pass train 30 tons light
probably 24 tons average

Including Energy for heating cars
light 33 watt hour per ton mile
at 30 mile hour 26 at 40 28 watt
hour ton mile all above at
Bros bad 17 at trolley 30 miles
20 watt hour ton mile at 40.
others say 60 per ton mile

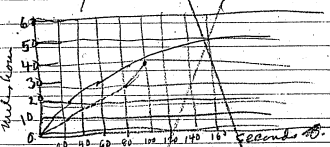
20 miles an hour train weight 300 ton
accel 0.5 mile per hour per second
rate of braking 1.25 Coasting 40 sec
time of stop 30 sec
[illegible] heating & motor —
20 100
30 miles hour 150 KWH for train
40 200 "
50 250
a maximum drop of 10% on a trolley & track of a single phase system will often correspond to a 25 @ 30% drop in the polyphase system

Efficiency on Interurban Union Traction Co — 56% from bus bar to motor on car motor & gear loss 25% — 42% net to track

acceleration very little importance on Interurban Traffic
stops are so infrequent averaging 1 in 2 miles

above data Stillwell's paper
Pt I XXVI Elec Engr

Long Island RR — Steam train
average time of stop
0.49 — average speed between stops. 26 miles per hour for 3 different trains
Run 23 miles — schedule time 56 mins average speed 39.9 highest track speed 52 miles. Grade level
Long Island City to Valley Stream via Far Rockaway



Woodville Steam train L&RR
See p 716 Vol XXIII Elec Engr
above for 3 car train Total Wt 276 ton
13 Kw per ton train friction at 40 @ 45 miles hour

L&R limit train acceleration to 1 mile per hour per second

Present Trolley poor neglect
limited to 2 speeds
full series or full multiple
on three 2 speeds can never
meet all the conditions
Motors must always be geared
to meet max speed, otherwise
it very inefficient for slow speeds
or wherever many stops must
all kinds devices tried and
fail + if geared 20 miles how
then on accelerating [illegible] 25%
More power than geared to
16 miles + motors may be
easily overloaded or burned
out.
unless 2 motors if 4 used
it can be repaired & remedied
~~but~~ throw 4 motors series but
Complicate & much
seldom used
Violent fluctuations all
power seldom necessitates
Stronger bolleries

Using use of motors to get increased
rotation if they were geared lower
& cones peed at or [illegible] if was
sure they wd have muff especially
if soft or manganese cohesion
used - Disk Wire trouble
seems to be slip on acceleration

Our and make most of
Kerby movement are
Editorial page Times [illegible]

Fwa - use disk hard
Rubber tonty use 1/16 inch
copy

Dodge about uneven tubes
in plates 0000

Dyer Yes Breck California film
Spol yours dike Coalbos
Howdbt it

Pub Service –
Telpm Mr Young
P. S. Young Comptroller,
Room 912 Prudential

Sir Dyer of Court Insure for
50 was to protect bonds out
+ thus got hold of 30 Bonds
up in Hartley –

Dodge Rend/ale the
Ni he can to Chamwks
to be used up –

Alt Beach is the prospects
building – of Wales kept up
to mark – if it gets
a long charge every 2 month
or had any long chgs –

John Cell Better go ahead
on that tube 1/8 dia made –
So can increase during time –

Holland is when gets B. Cell
734 16 18 B. built up try
heavy during racing –

High speed lost track
acceleration Torque 120 160 per Tru
Brakes " 120 "
Duration of stop 15 sec
See Armaling Engs
XXII Ele Engr p 92 Crowe

Big Crayon Solvent out
Opera Cabinet for
Blackbs windows

Write Wilson Bros
208 + 209 Brooks Arcade
Salt Lake City —
Deep Creek Mines Bismuth —
What would fat cost, also if fuel or wood there, is there a road
would he lease part on royalty basis

Run down to Logsdens see it

When Dyer Smith gets
ring - patent (new) ask him if he
claims on other part the
arch —

Make Reg replace 1" dia
just like recorder but ½" hole
etc right dia

Fred Ott has works
on air regular

Set 5 Recdr levers at angles
angle until it doesn't
show much wear on
Monday see how long

Ott put in 3 or 4 def
Sacrifice Mg Crump Electrode
at once Cong —
Try mix of 25% Mg ot 75 Mn O
by precipitate Co Cogation
by mixing dials 33⅓% wg
50% Mg T desulfate Mg out
by weight —
plates ZnO. Bills Organic Carbon
Mg Salt - 1 quite

13 plate Exide wt 1804 lbs 44 cells
14112 watts at 168 watts ton
mile, it would pull itself
156 miles 134 watt input Ton mile
or 20904 watts input 75% effy

A4 weight 945 lbs 14112 watts at 168 amp
70 cells at 100 watts ton mile pulls
itself 300 miles input
at 60% eff or 25% input
24039 gross watts input per
ton mile,

Try Iron flake for Dolly
Prop up the Dolly cylinder
for Expts on flake making.

Send SB Catalogue to all the big
old line Carriage Builders -
Barleys Catalogue Jensen
Heuber, & two results. & a letter
saying that should investigate.

Anderson for NY or Hopkins
for NY get a table showing get
that of Electric Vehicles
6 yrs & vent all, proceeded
with Literature & make measurement
& get data of all of them.

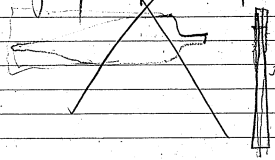
Get all gas mobiles & send
Catalogues & price lists

Buying up Electrics for
up & sell them -

figure out Table Vehicle
Efficiency

Take up Mullany & Beach
Controversy 10% Beach 10%
Mullany =

~~Stop~~ See Dodge about anodes
Changing shape to stop low



Dym & Walter Miller about
ultraducing new recorder
on ~~[illegible]~~ Cinquet records
& getting a remedy for
blocks at Tunnel Home
room - about contract
with Record man - no repairs
Have Supply on hand -

See Bacs. of proxy Central
Electrification of Central or
Reading or PRR
Mellin for electrification of
Boston
March see dif PR president
& notify them what
probabilities are
See Grade through Tech.
Inv. about Electrification
also if they would Cooperate
with us.

In Electrifying figure in
Cost of operation the
interest charges at
4 1/4%

Rebuild the 2 small
Baker Electrics

Write Hedman to get
2 Heavy of Bacs.
Want to ~~[illegible]~~ the buds
say every Organ power shows
have Bac 25% less drops –

Write P.B. Shaw & tell
him abt Equipment

No lighting provided for
SB Loco

Advertise in Electric RR
Jnl –

Present Substation for 500
KW Cost with Land
$22000 or $44 per KW
~~3 mon ago~~. without depre (was) chgs
$28.62 year wages 3 men/hr.
Labor cost 2820. $450 repairs
$400 supplies. Power only
30% of Capacity whereas in
SB Loco it comes 80%

Dodge about recognizing among the C.P.
also why not have Schrot Lake make Cu SO4 from what we have.

When down in the mouth think of Jonah he came out all right.

Put a ball in new 7/8 recorder & try it as a regular flotation

Keep L. Ott at making Wooled sponges. Perhaps can feed as powder & it will dissolve down on grass no Lubr. as a flake at 60 very cheap.

Send from Dyer Smith off & have little cups on end tube patented - dotts turned up edges of grids. Bars ground off. W.A. of plunger patent rotation distributor - not the rest. Pulsed. Tries all the ways of adding lithea.

Combine B. & L. in Pneudes method recuperation cap of iron by 1st dissolved fuller & then long weak charge.

How about selling E.P. works but what about selling my bonds thru a local Newark broker.

See Dyer & Mr Chapin first report among in Nat'l about Chas make it 1/2 step? Mr Pulles Can use this to advertise balloon.

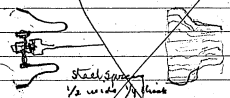
at intermediate points where
Trains made up Cross tracks
with 4 truck Travel Cars to make
up for trains made Similar by GB & Co

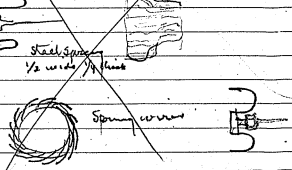
Erie 4 car trains Edwards & goes on boat
& travel but won't Enter on account of
gate avs elev - & goes to destination
Similar [illegible]

Worst weather 6 to on rails
1/10th of weight 1/5 in Summer
on day rail 1/7th ordinary
Conclusion.

Wards Refrigerator cars
for patterns 1 etc for 60 V
Motors 1 & 2 low
wagon find out
from Lenoxhead

Truck wheel





Where Anderson Wheels
Cars made wheels
7 persons on it —

ask Burke if the cars
letters have a good
Electrical Mechanician
for 3 days —

Ask Churchward what
he charges per day

figure out for Anderson that
Hicks vehicle with the Kemper
Head battery he used in Ok
then he can take it out & add
E battery to make the same
total cost & get very much
more mileage —

Dallas Form up on #4
then ~~[illegible]~~ Run endurance
& allow plates to water
until it gets 3 inches below
the top of the plates
but test every 25 runs
then fill & run again
until 3" below & after
certain number of runs test
its capacity by new sol
& several runs —

Ethan Steel Co suggestion
for 5 Ton truck wounded
E Batt see Joe & Morgan

for City use 20 Highdon A8½
#16 load of 320. give normal
decding of 30 & 1/2 the
Mileage
Could make 16 plates
use 10 cells.

3rd person who has seen
Halbury Lansden Tony & who
very delighted with Battery
but not satisfied with
truck —

See Bergman & find if he knows
good man for Lansden

Ask Martin if he knows
good Elec RR Conductor Eng
not too high priced in mind
who are the high lights of Elec RR

Get Work Report & Finder on
Chart Curve up to date

ask Ford Dill see how Graphophone
selling now —

Dress Pierman make record
+ use old reg reader —
get lot of recorders together
steel on old reg plans +
then go over + teach Walker
Miller —

Get new Weber Piano
down —

get 1 3/4 1 1/2 1 1/4 thousandth
reed & cadmium dia clock
for Pierman —

Write Van Horne and for 2
best works on Elec RR —

Somebody put dig in
Elec Engrg Society Journal
items on Elec RR

get Hedley & Co. Catalogue on
printed literature for Electric
Seat — can get list of boats
sold last 8 yrs by Elec boat
Co from manager —

Fix Durand a recorder — knife
edges send for Biz Meadows
& Edison test it to get
deviation — make reader more
sensitive by angling ball end
of lever & see how it wears

Get from McClaveny rates
for media column in Times
Tribune Sun Herald
American World —
Phila Boston Washington
Cleveland Indianapolis
Chicago Denver papers
also Magazines —
for reference —

See Holland see if we can't use short cams for some tests —

Get data from Holland that I gave him —

Figure out Vehicle battery economy life —

Holland after Greyhound has run 20 000 miles have them man testify you & you go over & give long chart & get actual capacity on long & normal charge for A.D.T. & ditto & thereafter every 10 000 miles —

Ask Dym amount of Corporation tax all Cos —

Mfrs test dead battery Vehicle

speed 9.5 miles hour level, 28 amperes
4% grade 52 amp speed 4 miles hour
4½% grade 56 amps " 3 "
Solid tires, wt 3750 lbs passengers etc
total 4200 lbs. — 218 watts per car mile — slight grade — running both ways average 92.8 watts per ton mile.
Dead level draw bar pull 39.26 lbs ton

Look up see how that Fe that was reduced by H worked Have Ralph Reduce 5 plates after discharge from ahead battery E 18 & reassemble in a tube cell or put ~~single~~ against tube plate in other cell —

Tribune, 6" Double Column highest $83 once
Herald Double that of Tribune $166
Times $67
Sun $74
NY Commercial, daily, bids. $67 -

Boston Herald also Globe $100
Phila Record $83
Inquirer - $83
American - $74

Washington Star, abs. Post $40

Buffalo, Courier + Exp 50.
" News 67

Cleveland, Plaindealer 50
" Press 54

Chicago Inter-ocean 100
Tribune $117
" News 134

St Louis - Post Dispatch - $83
Republic - $83

Cincinnati, Council $47
Inquirer - $67 -

June July Aug Sept Oct Nov Dec
receipts 285 odd for month
for all the Co exclusive work
done for Chem & Lab. & rec'd by
95 odd Adv — for month
Income w/out ads only would
take care of that

Have not yet been
raised on phones

Dollar short ch a call
for 1 min then charge reg
want to see how short ch
on SB Lord varies act,

Bachman
Keller Copper wanted
Rare wash off

Dyer wants progress with
Speaking Tubes

Sec Bacon Ready RR - Yokum - Reid of RG
McCrea PRR - Southern RR Atlantic
Coast line, Atlantic & Pac, Cunningham pipe
GTR - Illinois Cent Union Pac -
Dyer - How about Lowndes
Coreland

Actual Cost Light Delivery Wagon
from Mr Stern (Flynn)
2 Horse load 64.00 Cents
Internal, Horse wagon etc 40.15
Stable rent for 2 horses 18.75
do Wagon 9.39
Allendum 2 horses 27.32
Showing " 13.20
Drover 171.42
Boy 114.25
makes 3 deliveries 428.54 Cents
daily 800 lbs each

Dally make Copper flakes
by plating Cu then Fe then Cu
also on Ent Fe out by acid
H_2SO_4 = Cut up & make back
cell.

Make some Ni Cobalt flake
Mixed anodes Nickelen anodes
75 Ni 25 Co 90 Ni 10 Co.

plate Ni then Fe then Ni, then dec
Fe out by local action in acid

Letts Ni then Zn then Ni &
dec Zn by acid - Zn doesn't
reduce Ni -

Adolz
Would any sane man
Take out an Electric Motor
driving a printing press
for Molasses & Sulphuric
& by cylinder gasolene
Engine Would any
Street Car Co take out
the sample Slea & Sulphuric

the Gasolene Engine even if the Expensive Battery unwanted & Maintenance could be saved

Send up to Franklin & see what is referring to gross 20 miles —

See Hunt & Co Industrial Loco & Billing they build Consecutive Of number

See Billy Bee & Cons Truck to my Cost to t —

Ask R Abraquest dead cost of old green aloes & of of Cells in t —

Ask if he has used up all old mott in stationary Cells E18 27 etc also try Expert his Wash water from reclaiming Tz on old plates to recover nickel —

Dodge Recent use was old rubber from reclaimed E18 by special design on cutting fresh aloes —

Ra & YM Cutt down to 100 day until further notice —

Patent water tube in Boiler & Turbine —

Figure out good food for Disc

Harry Weller pay Wm the bond coupon interest due on the 1000 000

Bethlehem Steel Co or pocket scrap at 10c per lb for the nickel —

See Dodge about talking old E 18 apart to use mix ~~+ get all cues for the labor~~

Put up 3 more Irons with No Hg but silver plated Cups —

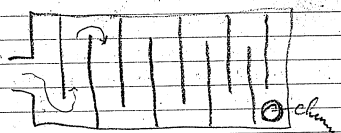
Plate Cups with gold — lay in strips in Cup so

Fe on shrinking will push on the strips & prevent control also now screw full size of Cup made of 10/mm wire ~~[illegible]~~ also one nickel plated —

plate tube stock with gold & make up by hand 2 tubes — find old t —

Jura — The Rism Tesn 10 drops in h 21 + is ok — Can I give me some to Export work

Dresden



Schupel about diamond holder 1/8

Andersson — supped up — Bueno apps, & full S a + General a Cuba Tro —

Dyer Let us get up a picture where several voices are given & introduce the new Trap Tube —

Make 2 pockets ignited today from muffle —
Prior Goldstein ignite Nitrate from
Dry Scale Oxide again thus
190 & then ground finer.
Thus scales from Amount
Iron wire, Ignited Sulphide
Iron — Ignite good load

Ask Walland best paint on
Erie building to prolongation 20
min & what is economy
in Watts & Amp —

Dully make Green flake
using Zinc to Exit out.

Goldstein — ask which number
by part B. high in metals
Mod, also for tried
powdered 190 B.D —

fet a cell tight rings tight pop
valve when cell change to rate
of popping be ranged on cell by
sound or indicator to indicate
or work related to effect

See B Beck has record of
salesmanship of Ilway makes
good —

Change life insurance in
Mutual & Mutual to
Mina a old the shedules

Walland Jelly Off rig up clock
work to change 80 Amp for 1/2
hour. A4 — discharge normal. Holes of 0.04
by clockwork for Endurance
test. When battery 3/4 fully
work might a day

Experiment on soft felt hammers to stop bad notes on piano & the thump sound buy some hammer felt from Lauder & put fred off on the notes that are bad —

Gwen — to furnish Pettit with some of his Reproducers to press.

Pettit to pass out on metal Salve box & make sketch & try —

See Parke Channing Rolls Low grade & G. H. Hammond —

Cass [illegible] cents worked

Murray — asked Jed he get wire over to sell about [illegible]

Dyer fund inst fold-age bond dealers in Newark —

~~Dyer to get statement of our Advertising — See Jim Dodds some over to Bradley —~~

Dyer to go more sharply into reducing Expenses in office forces & devel Regal & Self Recording & Talent —

Fred off make 003 & 005 004

Cockcroft dis lot of them for premium 10 Reproducers —

Pierman play scale & find out bad notes in Piano: play with cents on both pianos same tune to see if bad notes are in piano or in Reproducer or funnel —

Clark Weber if we are buying any from Dayton now from Engl. now

fund of Sprague was returned
letters from Martin who are
the actors RR Engineers now
Write Brown, arrived tell him
Chamberlin of Cell making
for RR + send Catalogue

See McCrea, Baer, Reid of
R.I. RR — + Walton letter from
Jack Morgan —
Also Lehigh Valley President
for Branch line —

Our sources of information should
be good from some jobs why
not find out how Mr Victor
Stock is, + how about results
making their last over —
We should get more information
when it is so easy —

Dyer what's Geen done on
playing off travellers —

Take train out E 18 ground
up + make test for packets
see of Ch —

Electric Bergman about
Geo Ehrenst, see him myself —
his son also —
Can substitute Lead for E
by changing box
Can make his own ct
got 26 — Hanschlicher
Electric Machine law —
at Treasury 93rd St + 3rd ave

See Barrett Adams —
Billy Bee found exit freight
Wedles Tokyo —
American Exp — Tokyo himself
president. Same Tokyo knew
in Detroit

See Mena + Newman
and in plyes Boyle

Bridge Susquehanna RR problem
Cars required daily —
Worst grade 135 ft mile —
at terminal end —
Size rail - 80 on Section for Elec 20.
Coal 6000 Tons 120 Cars day
Trans 25 load 20 Cars — Except grades Mun 6 cars,
2nd Sec 132 ft mile grade,
20 miles,

3rd Sec 20 miles 148 —

Branch 133 ft grade
Boat 15 min —
Another branch that will abandon
Locos 169 000 on drawers

Employ 44 to 50 m —

Buffalo & Susquehanna RR
H I Miller Receiver
982 Ellicott Sq.

Buffalo 1/2 week at R&RR
115 Broadway NY

North, Mackenzie + Mann
also Boyle of GTR &
Shaughnessy of CPR abt new
Loco

2 Cell 354 —
21K 2 Li 2 NaOH
Dup 19K 2 Li 2 NaOH
Dup 18K 2 Li 2 NaOH

Try Dup 19K 2 Li 2 KI + 2 NaOH
see if NaOH neutralizes the I

See the Gold and silver Ferrocyanides
which are

John Orth marked wings for 1/8 tube
see Weber abt my [illegible] aluminate bath.

Ask RA send up 1/2 lb of
ignited sulphate for test plate.

8.54 — 1 gm Aluminum - 2 gms
phos Soda - Each cell
2 K 2 Li —

Dup 1 al 2 gm K phos.
Dup 1 al 1 gm CaOH
Dup 1 al 1 gm BaOH.
Dup 1 al. 1 gm SrOH.
Dup 1 al 1 gm ZnOH
Dup 1 al 1 gm MgOH
Dup 1 al 1 Iodide Na
Dup 1 al 2 Borate K
Dup 1 al 2 Borate Na
Dup 1 al 2 gm Chloride Sodium
Dup 1 al 2 " Chloride K
Dup 1 al 2 " Na
Dup 1 al 2 Acetate K
Dup + al 2 " Na
Dup 1 al 1 Ammonia
Dup 1 al + 2 of a double set of K + NH4
Dup 1 al " " Na + NH4
Dup 1 al 1 gm SbOH.
Dup 1 al.

do compl for yesterday

Take long run low tube wash free KOH, soak in
$BiCl_3$ NH_4Cl 1/2 strength, put in KOH, wash well.
+ Run 2 K 2 Li

Ask Holland if he [illegible] 22 gms of KOH
should be used in removing liquid —

See Buchman if we could get 5 HP single cyl gasoline
engine + big clutch run into by accident
between Tonnesen spot + [illegible] Road. The Bixby land
that had no values —

Holland to run a Curve on reduction
of the gas column in a Cell under
Condition of production on short + on
long days —

Looking Curve that has small
quantity Rubidium in —

ask Dyer what exchange arrangement have we in England Germany & Amsterdam —

Sherman monthly record 1st order, 3/4 of amount to G.
followed by final order
3 week after,

Goldstein make NiOH.
& when boiled down ready
to dry pass CO_2 thru it
to Carbonate all the NaOH

Grind up $NiSO_4$ + NaOH just
moistened to mush & dry
+ bake out, Likewise make
a preliminary test,

Find out exactly how new
Islands perfect plants looks
getting on — also what
he done about Gilt drawer
disk

Bachman thinks 3½ ton load
10 weeks showers in 3 miles hour
at least,

Wash out the Euby mix - find
out the No thinner it was
900 something - separate flakes
& Load & Light,

Look at Jw Resins —

Send Bergman 2 Sparkling
Catalogue & guarantee
+ Reg Trade guarantee

Find out for Sprague size &
Cost of 5 amps Bathing at
NYC 5 salon —

as Velox has no Exclip prop
think decision loaded up
& trying get rid of them
& not our where they are
Days —

Wheel Cement road 1 Rev 54 500
abt 60 day –
gorge 1800 June 4th –

Dodge – when not rig up
+ wash all gas lines hydrate
15% to 18 Comes back on Stream
+ 2 or 3% on Cooling

get draw bar pull on Waverly

Holland – Experiments with KOH NaOH.
KOH, see if a mix cant be
got that has lower resistance
also not affected by Cold
so much diff heat.

John Narrow up the slide
that feeds the flakes.

Have Dodge Cut some flakes
50% smaller than – see if we
have some

Holland try 75 amps 2 hours
dooding rate on A4 and
then machine 1 hour on
A-16.

Try the Boron for points,
Wash and bake Boron Walter Miller
gas room

Wind 1/16 spool perforated ribbon
cut at least 1 section & force on maps
to hold, fill additional flakes,
smaller hole block to test, also
with flake 20/100 or less

Jas Ricalton
Valley St
19 Maplewood

See Dyer about Ricalton

5.5.

Names for Grand Aeolola

7½" Polyodion

Polyodia, any conjunction or combination of sound, either made up of discordant unusicons or in acatons

Polytone, Everyton.

Polyphone - all kinds of sound

Consons, Harmonons, Consonant
Consonola

Dulcementé, sweetness, softness of Tone
Dulcementola

Dulci soft, sweet

Dulciphone - Dulcino, ola

Euphony - Harmonous well sounding
Euphonola -

STORAGE

	A4 Equivalent On Hand	orders on hand	Shipments				
May 19	12506	6261	214				
20	12538	6183	221				
	12562	6181	90			60	
24	12351	5883	451				
27th	12070	5795	424			20	
28	12449	5795	none				
Jun 4	11286						
10th	10729						
14	10158	5388	3179				
	10359	7269	3358				
Jun 22	10308	7268	3714				
Jun 27	10031	6788	4346	167 Days	26 days		
July 1	8367	5746	1742				
8	8147	4411	2442				

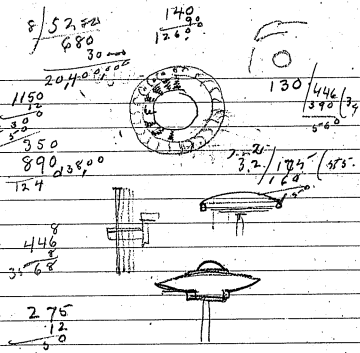
Workbook sheets plotted on Curve

New orders

none

Think will have to start up Aug 1 on 250 day & increase to 500 rapidly as possible —

See if I have told Dyn Smith about Tribune & Palm beach



Converse D. Marsh
15 Spruce St
N.Y.

Advertising

Office & Genl -

	Men	Pay	Rate
Legal	14	446.54	3180
Advertising	84	4.15	458
accounting	22	543.50	2470
Billing	18	249.	1383
Transcribing	11	114.50	1050
Bates	3	71	2360
Miscellaneous No 1	10	169.50	1690
Order dept	15	199.50	1326
Pay Auditing	7	94	1343
Purchasing	10	206	2060
Traffic	5	104	2100
Production	18	331	1840
Shipping dept	6	93	1550
Pay roll	9	146	1622
Credit + Salesmen Dept	10	340.50	3450
Miscellaneous General -	17	320	1900
Paid by check Noth.	21	574.17	2733
" Mfg	5	115	2300
" Big	6	129	2150
Bronx + 21st St	60	1617.60	2695
43rd Studio	8	226	2825
Recording Dept	17	557	3276
		7064.81	
	576		

Rate Hour Dept out		
	Wt. Waverly	3 on Load 1580 lbs
	45 cells — A4	67 units
	Bxly 2157 dept	3 on Load
	40 A6 cells — 22 amp	

Bismuth
Near Dodaville Esmeralda Co Nevada vein
opened 900 ft 20" to 4 ft wide, Sulphide
Bismuth 14% metallic
Near Newfoundland Boxelder Co Utah
High grade Bi ores occur in association
with Copper ores.
Imported Bi Valued per lb in 1902 1.11
903 1.59 - 1904 1.82

1 100 Nickel grids with
lugs or everything complete
all labor & material —
but without Nitro or flake
Costs 24 dollars per 100
grids —

May 10 1920

Iron mix

Material	·16327	Men		
Labor	·05917	Iron Sulfate	6	
Laboratory	·00374	Red Iron	4	
Water	·00207	Fe(OH)3	6	
Coal	·02025	Dope	1	
Genl repairs	·0346	Mixing	1	
Power	·0238	Foreman	1	
General Exp	·0162			
	·3246		19	
Hard Coal Generation	·0170			
	·3076			

Nickel Sulphate

Material	·0366	Nickel Hydrate		
Labor	·00134	Material	24196	Ni.50 5 men
Water	·00003	Labor	·0228	
Coal	·00042	Lab	·0062	Ni.04 5 men
Laboratory	·00057	Water	·0024	
Power	·00009	Coal	·0364	
Genl Exp	·0044	Genl repairs	·0134	
	·0435	Genl Exp	·029	
		Exp Power	·0026	
			·35510	

Anodes

Material	·2727	4 men
Labor	·0096	
Genl Repairs	·0300	
Genl Exp	·0178	
Power	·0094	
	·3365	

Potash	Solutions	
21%	·01723	
33%	·02498	
Hypo	·01476	
Distilled Water	8.9768	Per 1000 gal.

Selling Price

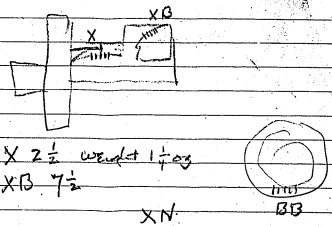
Nickel (Hy)	·50 5/8 c lb	
Iron mix	·36	
$NiSO_4$ 1 to 1 mix	·068	
Anodes	·34 1/4	
21% Kott	0.23 3/4	
33% "	04 3/4	
Hypo 1 to 1 mix	03	
1000 gal Distilled Water	0.1 per gal	

Substation storage battery
22000 Ap 1 hour 135 Volts
$60. Kilowatt hour
Makes 625 discharge then
scrapped, - these discharge may not
take place for years

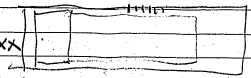
looked 81000 UP bonds
from Valtz, May 18 —

Bally bldg without heat.
Cost 98|461 63 get content,

Standard GA superiority measure



X $2\frac{1}{2}$ weight $1\frac{1}{4}$ oz
XB $7\frac{1}{2}$



XN 10
XX 1 (round Top)
BB Zero

Heine Velander Estimate

1 Ton Horse drawn – 6% is chgd for 8 yrs

	Year	Percentage
Depreciation	40 00	1.80
Interest	12 00	.54
Insurance liability	40 00	1.79
Fire insurance	4 00	.18
Driver	780 00	35.03
Washer	60 00	2.69
Rent	100 00	4 49
Lubricants	5.00	.22
Harness	100.00	4 50
2 ½ Horses at 1.19 per day	1.085 87	48 76
	2.226 87	100 00

Per week 52 42 82

" day 6 7 13

" Mile 17 .4285

" Ton mile 17 4285

Loaded ½ Trip .84

Mailing expenses May 28 0 13

Unchanged

General Velander Estimate

1 Ton Electric – Lead battery Life of 10
Earning 6% on cost & yr & working 8 yrs & working 8 hrs per day during that period

Depn	265 00	11.3
Interest	79 50	3.39
Insurance liability	75 00	3.21
Fire insurance	26 50	1.14
Driver	780 00	33.28
Battery repairs renewals	253 00	10.84
Tires	149 52	6 39
Chains Gears, Sprockets	200 00	8 54
Current 4¢ KWH	177 60	7.58
Battery Man	100 00	4 27
Accident	72 00	3 07
Washer	60 00	2.56
Rent	100 00	4 26
Lubricants	4 00	17
	2343 09	100

Per week 45.06 2 ton 53 07 5 ton 68.87

" day (6) per week 7.51 8.85 11.47

Per mile 35 daily .2145 .2935 .4979

" Ton mile .2145 .1468 .10

" " Loaded ½ Trip .429 .2936 .20

10900 miles per annum
312 days 35 miles day

Supposed same mileage as above

National Co	7 July 1908	7 July 1909	7 July 1910
Capital	10 000	101 000	
Surplus	2.829.367	2.938.629	
Profits	1.901 115	896 436	
Pharmacy Co Cap	600 000	600 000	
Surplus	239 895	414 246	
Profits	259 895	229 951	
Mfg Co Cap	500 000	500 000	
Surplus	66 046.	229 952	
Profit	252 015	344 585	
Bicarm Pharmo Loss		10 308.	

April 28 1910.

Flowing cement without clay.	Dry	Wet
2.5 cubic ft ½" rock	50.1%	41.66%
1.7/8 " Sand	37.4	31.16
5/8 " Cement	12.4	10.33
7 gals 3 quarts water	—	16 66

This flows perfect, rox dont settle
best results when Gorling water used.

Hill of Slutzbaker say Cubic feet ~~of space~~ for

A 6	19.3	including Trays
17 plate MV	21.3	
A 4	14.98	
13 plate	16.66	

17 plate 6.5 X 6.125 X 12.375. Floorspace 1751."
A 6 3.75 X 5 X 12.375 " 1406

Shipments Cement

	1907	1908	1909	1910	
Jany	52410	32929	49032	47179	
Feby	32478	31602	51494	54809	
Mch	76522	71510	121767	144827	Predict
April	111414	79686	133210	165000	165 000
May	91493	92954	149551	163000	170 000
June	101121	96735	162115	140382	193 000
July	120715	116158	148266	163290	192 000
Aug	153887	122572	179956		205 000
Sept	150668	129936	178592		210 000
Oct	128620	123116	155540		185 000
Nov	70425	82389	115241		145 000
Dec	41608	59376	58003		81 000
	1.131.365	1.038966	1.502770		

April 28 1910

Number men operating			648	
" " Constructing			0	
Details				
		Day	Night	
	Operating	359	113	
	Elec & Mech	81	25	
	Farm	15	—	
	Administration Office	41	—	
	Chemist etc	14		
		510	138	648

Kilns Cement Clinker Cement on hand

178.640	167.140	28000	109400

July Sales cement 68.5 cents bags
133000 bbls $9332 profit.

Anderson carriage E 40 Lead 24

wt - 1600 - without battery 100 watts Ton mile

Plate	Wt vehicle	wt battery	amp	watts	Carriage resis.	overload
11	2482	882	140	5760	46.4	82 lb
13	2620	1020	168	8064	61.5	220 "
15	2758	1158	196	9408	68.1	358 "
17	2896	1296	224	10752	74.1	496 "
19	3082	1482	252	12096	78	682 "
21	3238	1638	280	13400	83	838 "

If lb pulls lb following will be weights of Stronger Cars

Plate	Wt car	Wt batt
11	2564	45
13	2840	56.7
15	3116	68.3
17	3392	63.5
19	3764	64.3
21	4076	65.7

Anderson 1600 lb Carriage

	watts Ton mile	Short chg	long chg	Bu L.C
A4	100	66.6	80	120
	90	74	88.8	
	85	78.2	93.9	
	80	83.3	100	
	75	88.6	106.4	
A6	100	90	108.3	142.5
	90	100	120	
	85	106	127.4	
	80	112.5	135.4	207
	75	120	144.4	

Resistances of Jungstén bronzes

½ dia. ¼" thick between platinum electrodes bearing upon it with moderate pressure.

		ohm
Blue	$Na_2W_5O_5$	1 107 000
Lithium bronze		65 000
Purple red	$Na_2W_3O_9$	101 ohm
Reddish yellow		.7 ohm

100 watts to ton mile	is	20 lbs pulled per Watt	
90	"	22.2	"
85	"	23.5	"
80	"	25.5	"
75	"	26.6	"

A4 short chg	7200 watts		
A4 180 amp	8640	"	40 cells
A6 short chg	10800	"	
A6 long chg	13000	"	

Hola 307 70 ft down Raub

Lots Bramith - ~~a~~ ~~of~~ ~~[illegible]~~ plug used in bottom ~~[illegible]~~ ~~[illegible]~~

Andersons Brougham weight with
40 A6 - 2400 lbs without battery
weighs 1585 lbs = $2250 paid for
vehicle without battery
$1.41. per pound of vehicle

A8 = 4 7/8 x 5 1/4 2700 co. liquid
Twice that of A4 -

Car Lighting - Price sold to RR by C&C Co
Straight Lighting 32 cells 60 V 300 amp
$650 @ 600 wt. 171 lbs cell
Axle 16 cells 32 V $325 for battery
$400 to 750 for axle rigging
300 amp list 47 75 - Can Co sell at $17 to
$21 - pay $13 per cell.
Pullman 32 V 35 amp 8 hours
Coaches 10 DH COAR to 25 amp Rock Island
300 amp cell weighs 171 lbs with tray
no pasted plates 3 1/2 watt per lb -

Cement Sales

	A	B
March	62%	38%
April	76%	24%

English data — Battery
100 A4 cells — 1400 cells week

	Material	Labor	Misc	Constant Labor & Mat
Metal parts in rough	40.95	194.52		235.44
Rubber parts	77.79	8.08		85.87
Flake labor 50¢ lb } 50 lbs 1.19 }	59.50	25.13		84.66
Nickel hydrox 55¢ lb	159.58	70		160.31
Iron Mix	89.31			89.31
Nickel Plating	1.53	1183		1336
Trays labor 18			12.09	
Sundry labor 9.56			09	
300 No 5 1" wood screws			09	
Water			15	
Dry Lithia 13-1/3 kilo at 96 1/8			12.75	
140 Litres 21 KOH + 50 grms Lioh at 08			11.20	
100 256 ¼ mac screws				36.28
				06
	465.00	250.00		715.00
			Gent	264.00
				979.00
2800 weekly	450	220		670
				220
				890

Details of General Exp per cell:
on production 1400 cells week 85 hours

	Labor	Material
Rent		10
Electric Current		39
Water, Gas, Steam		11
Formen	20	
Watchmen, Sweepers, Elevator men and general repair gang	15	
Inspectors	33	
Factory supplies oil waste, Pencil Slitting Screws, Emery wheel, grafite Screws Drills + Lab chemicals		19
Repairs to plant + equipment	45	
Repairs, replacements, material Machine + Tool steel castings, Lettering		08
Pipe fittings + Electrical Supplies		
Executive — Engineering — Office + Sales Dept salaries	48	
	1.61	1.03
Total 2.64		
2800 weekly 2.20		

Chlorinated [Chlorm 8c]

Toluol 12c lb including cost material

Solvent Nap 21 lb —

Naphthalene 13 MP Toluol 194 Feb

Xylol 38 Xylol 310 "

Bad iron brot back by long low charge rate req A4 pocket which been run 250 times in small test cell + gave 580 @ 1160 gave after 30 hours at 200 ma

1200 1775 1900, should go 25@27000

Cement price agreement expires Jany 1911

	Trucks	Upkeep	Bal. Light	Yard	
Adams Ex	155	68.30	2.17	651	
Atkins Vanting	13	32 65	3.14	1020	
Tiffany	21	47 92	3.71	1113	
Horn + Co	14	29 62	2.21	663	
Macy	15	36 01	2.13	639	

April 28

B- 273 m - B pledged for 95. 120 m -

Fidelity for phone bonds maximum 32 m

Emp Co	Inc 2 000	Supplies 23 500	
Nat	Inc 26 500	" 29 000	
Works	Inc 30 000	—	

MC	17
WS	5
UP	41
MP	48

Battery Co owes E

Cement Co " E

Lumsden Co " E

Works " E

MC Cent	98	Chrom MPac	50
LSMS	25	WS	10 for loan
UP	110	LSMS	50 95 -
WShon	64	MC	10
MP	1		120
	298		

Fidelity for for MP 32 — Macy 20

book out 81 000 + prevous 25 000

Sold thru JPM 106 000 out

Thus fond 299

106

193 of E gently on loans

left

June 1st 177 000 bonds on hand unlegally on loans

270
100
70
440

Oct 1 1909 Cement.

Notes in Banks	270 000	
Notes RHT	146 000	
Shelmerdine	3 264	
EC Miller	936	
J H Thompson	1 349	
Edison 3 yr notes	661 238	
Edison 4+6 months	268 710	
Mchdz notes	104 427	
Accts payable		1 456 237
Pay Roll	26 472	
D L+W Freight	61 067	
Mchdz accts	84 288	
Paints+Phonowks	16 704	
Total	188 537	1.644 769

Victor Speaker Weight 5½ oz swing arm
1 oz total 6½ oz Pathe Concert 7 7/8 oz
Smaller 5 oz 40/1000 Ball.

24% our Records go abroad
16% Phonographs "
26% Films "

RH Beach 10 5th ave

Cement. Things to be improved to get cost down -
Gradual change to steel on mine cars
Arbors on Rolls
Lagging pulleys + Conveyor pulleys
Gears on Cooler
Wear linkes 125 + 126
Screw Con Gudgeons
Linkes on circulating Conv
Repair big Caesar

Poured House
Cubic foot ½" rock 85 lbs
" Sand 95 "
" Cement 92 "

Proportions 1.25 Cubic ft rock
50 " Sand
25 " Cement
3½ lbs Clay
3 gal 1 qt Water
12.6% of whole is water.

Length short tubes 23 1/8 or 46 1/16 lbs
" long tubes 65 1/16 lbs
41.5% increase in length —

Cement Probable saving 1909 shut down

Mile pebbl	
25	profit on sale 800 tons limestone daily.
42	Savings on our lime, washer, 1 Quarry + freight
5	Belt wear on account cir con + lightening bar
5	Saving chalk in dustes
5	New Packing house
25	Kiln coal.
1	Saving in lime, No 2 dustes dryer
4	Less repairs
1	Bins in stockh + slopping humidor
2	Shovel No 2 Quarry
1	Oil

Cement.		Monthly
	Selling	11.000
	Advertising	4000
	Genl Ex + Commissions	2000
	Interest on notes	3000
	" Edison notes	4400
	" Bonds	7500
		$ 31.900

Exide — Cost of building 1 cell $160 — 24 cells

Plates	7	9	11	13	15	17	19	21	
Amperes	84	112	140	168	196	224	252	280	
Weight	22	28 3/4	35 1/4	41	46 3/4	52 1/2	60 1/4	66 3/4	
Dis rate	21	28	35	42	49	56	63	70	
List price (44 cells)		407	505	583	658	742	830	910	
33% off		263	339	388	441	494	556	600	
Wattpall		7.4	7.67	8.19	8.16	8.3	8.13	8.23	
watts		9.520	11.900	14.280	16.660	19 —	21.420	23.98	

Edison 1.50 12.750 — 19.125 — 22.275 — 19.125
70 — 1.75 — 14.875 — 26.25 — 22.270

Victor Rec	dobr	profit	Disater	profit	list
8 inch	17	4	21	14	35
10 inch	30	10	40	20	60
12 inch	50	16	66	33	100
10 for Blue label	45	15	60	40	100
12 " "	67.5	23	90	60	150
10 Red Seal Victrola	112.5	38	150	100	250
10 Amen Red Seal	45	15	60	40	100
12 " "	67.5	23	90	60	150
10 Victrolas "Amn	90	30	120	80	200
12 "	135	45	180	120	300
10 Tamagno	300	50	350	150	500

Moving P.P.C estimate receipts for yr films 240 m
Exhibitors 350 m machines 20 m. Jany 1 1919
To June 1 1909 film roy 104 m Macroy 134 m
Expenses 53 m outside legal.

Average cost Negative films 1 40 foot
cost positive films including everything
5.85 to 6.00 per 100 ft average selling price
8.55 2.7 profit. see what it is since.
Waters cut off —

2.8 130 28 104 260 3640 2080 504 56 520 100 1040 2620 1040 293 240

July 1st 1909 EPC – 21731 preferred 91470 Com
759 bonds 884.000 – notes = Endorsed
on 253 000 notes = 228 000 due from customers
260 000 bbls on hand 161 000 Directors notes
43.000 Gilmore & 2nd Natl 123 000 mchdz
220 000 notes in banks.

Records	5	amb
Wax	174 00	174 00
Carbon	99 25	112 55
Sundries	12 00	12 00
Patent	181 09	181 09
Labor	165 50	165 56
	6.3 c	6.45
Freight	45 00	45 00
Pkg & boxing	51 00	51 00
Advtg	122 75	122 75
Genl Exp	152 00	152 00
	3.7 c	3.62 c
Sell	15.2	Sell 19 c

Cement dealers	A	B	Total
Mch 1st	690	299	989
Mch 31	760	349	1109
April 15	802	371	1173
April 30	830	377	1207
May 15	842	384	1226
May 31	849	388	1237
June 15	852	391	1243
30	862	396	1258
July –	875	411	1286

Big Record $4\frac{1}{2} \times 7\frac{1}{2}$ 14.13 in circumference
Velocity 37.58 = 8 3/4 minutes on 7"

Victor 12" length record $2\frac{15}{16}$ Speed 78 Rev
3/32 thick runs $3\frac{7}{10}$ min spinner inner part
22.18 – outer 46.3 – no more margin mean
surface Vel 34.4 weight 300 grms cost of
material 6.8 c per disc.
10" Disc.

Old Bismuth pockets 15% Bi highest, gave
322 mah per gram of $Ni(OH)_2$

Heigth A4 Tray 15" width 6" 8 cell Tray
24" long wt 8 cells + Tray 116 lbs.

A4 tubes give 8% less capacity in cell than
single test tubes.

9 lbs plate from 15 lbs punchings 333 gal
Cu NH_4SO_4 liquid is good for 100 lbs Nickel plate

$$44\overline{)565}\ (11.50$$
$$\begin{array}{r} 44 \\ 125 \\ 110 \\ 150 \\ 132 \\ 180 \\ 176 \\ 4 \end{array}$$

2944⅞

70

32
3
96
30
2) 1.25
63

30 400
600
24000
9600

9846100 (10,2
96000
2461

1350
2700

896

135

2289
3446600
1469

28000
2400
4000

(14

15
4200
300

98000

96 2000
88 2000
8000
17

92

1,900
259
259
2,411
1,468
943

300.

960
300
1,260
1,080

144

87 ft
1/3
435
2,175
1,0870

1 ft 1 inch third

12) 460 (38-
36
10

7776
2,880
5,148

1080
7200

5888
2355.2
1413.1
175
4
700

141
2160
7560
7776

365-
7200
7300
2555
2628.00

1584.66
2485.87
1603.1
3600
16684

147
36
8883
2944
5888

6) 51480 - in 6 weeks
8580 -
3248
534 8580

1080
324

5340
3204